

### **Amendments to the Claims**

The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method encrypting characters from a data element in a relational database, the method comprising:

reading information identifying a data type associated with data in a particular column of the database from a location in the data base, the location being outside the particular column;

reading a data element from the particular column, the data element including a first character string;

reading a data type of a first data element said data element including a first character string;

interpreting said data type in order to form forming a restricting character set on the basis of the data type; and

encrypting said the first character string into a second character string, each character in the second said character string being selected from said the restricting character set, said first character string uniquely corresponding to said second character string.

2. (Original) A method according to claim 1, comprising the further step of:

arranging one or more character sets in a pattern for a data type.

3. (Previously Presented) A method according to claim 1, wherein the number of characters in the second character string is equal to the number of characters in the first character string.

4. (Previously Presented) A method according to claim 1, comprising the further steps of:

converting each character of said first character string to an index value; and adding a varying value to each index value before encryption.

5. (Previously Presented) A method according to claim 4, wherein the varying value is obtained by the steps of:

creating an initial value by hashing an encryption key;  
adding adjacent index values pairwise from the left to the right using said initial value when adding the leftmost character.

6. (Original) A method according to claim 1, wherein the encryption is performed using the DES algorithm in stream cipher mode.

7. (Currently Amended) A system for encrypting characters from a data element in a relational database, the system comprising:

means for reading information identifying a data type associated with data in a particular column of the database from a location in the data base, the location being outside the particular column;

reading means for reading a data type of a first data element from the particular column,  
said first the data element including a first character string;

interpretation means for interpreting said data type to form a restricting character set; and  
interpretation means for forming a restricting character set on the basis of the data type;  
and

encryption means for encrypting said first character string into a second character string,  
each character in said the second character string being selected from said the restricting  
character set, said first character string uniquely corresponding to said second character string.

8. (Previously Presented) A method according to claim 1, further comprising:  
storing said second character string in a second data element in said relational database.
9. (Currently Amended) A method according to claim 8, wherein said first data element and said second data element are the same data element.
10. (Previously Presented) A system according to claim 7, further comprising:  
storing means for storing said second character string in a second data element in said relational database.
11. (Currently Amended) A system according to claim 10, wherein said first data element and said second data element are the same data element.
12. (New) A method for storing encrypted data in a database structured for the storage of un-encrypted data, said method comprising the steps of:  
determining a data type of a data element including data to be stored in the database;  
encrypting the data element to produce an encrypted data element;  
wherein said encrypting includes controlling the encrypting process so that the ciphertext corresponding to the encrypted data element satisfies restrictions provided in the database for storage of data for the determined data type; and  
storing the encrypted data in the database.

13. (New) The method of claim 12, wherein said determining includes reading information identifying a data type associated with data to be stored in a particular column of the database from a location in the data base, the location being outside the particular column; wherein said controlling includes controlling the encrypting process based on the information identifying a data type associated with data to be stored in a particular column of the database from the location being outside the particular column; and wherein said storing includes storing the encrypted data in the particular column.

14. (New) The method of claim 13, wherein said controlling includes forming a restricting character set on the basis of the data type; and wherein said encrypting of includes encrypting a first character string of the data element into a second character string, each character in the second character string being selected from the restricting character set; and wherein said storing includes storing the second character string in the particular column.

15. (New) The method of claim 12, wherein said controlling includes forming a restricting character set on the basis of the data type; and wherein said encrypting of includes encrypting a first character string of the data element into a second character string, each character in the second character string being selected from the restricting character set; and wherein said storing includes storing the second character string in the database.